RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number:	_/0/7/8,39/
Source:	IFWO
Date Processed by STIC:	2/16/05
	, ,

ENTERED



IFWO

RAW SEQUENCE LISTING DATE: 02/16/2005 PATENT APPLICATION: US/10/718,391 TIME: 16:21:30

Input Set : A:\Enz52c2.app

```
3 <110> APPLICANT: ENGELHARDT, DEAN L.
         STAVRIANOPOULOS, JANNIS G.
        RABBANI, ELAZAR
 5
 6
        DONEGAN, JAMES J.
  <120> TITLE OF INVENTION: IN VITRO PROCESSES FOR PRODUCING MULTIPLE COPIES OF PRIMER
        SEQUENCE-FREE SPECIFIC NUCLEIC ACID
11 <130> FILE REFERENCE: ENZ-52(C2)
13 <140> CURRENT APPLICATION NUMBER: 10/718,391
14 <141> CURRENT FILING DATE: 2003-11-19
16 <150> PRIOR APPLICATION NUMBER: 10/260,031
17 <151> PRIOR FILING DATE: 2003-06-06
19 <150> PRIOR APPLICATION NUMBER: 09/302,816
20 <151> PRIOR FILING DATE: 1998-03-03
22 <150> PRIOR APPLICATION NUMBER: 08/182,621
23 <151> PRIOR FILING DATE: 1994-01-13
25 <160> NUMBER OF SEQ ID NOS: 27
27 <170> SOFTWARE: PatentIn Ver. 3.3
29 <210> SEQ ID NO: 1
30 <211> LENGTH: 7249
31 <212> TYPE: DNA
32 <213> ORGANISM: Artificial Sequence
34 <220> FEATURE:
35 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic M13mp18
        nucleotide sequence
38 <400> SEQUENCE: 1
39 aatgetacta etattagtag aattgatgee acetttteag etegegeece aaatgaaaat 60
40 atagetaaac aggttattga ecatttgega aatgtateta atggteaaac taaatetaet 120
41 cgttcgcaga attgggaatc aactgttaca tggaatgaaa cttccagaca ccgtacttta 180
42 gttgcatatt taaaacatgt tgagctacag caccagattc agcaattaag ctctaagcca 240
43 tecgeaaaaa tgaeetetta teaaaaggag eaattaaagg taetetetaa teetgaeetg 300
44 ttggagtttg cttccggtct ggttcgcttt gaagctcgaa ttaaaacgcg atatttgaag 360
45.tctttcgggc ttcctcttaa tctttttgat gcaatccgct ttgcttctga ctataatagt 420
46 cagggtaaag acctgatttt tgatttatgg tcattctcgt tttctgaact gtttaaagca 480
47 tttgaggggg attcaatgaa tatttatgac gattccgcag tattggacgc tatccagtct 540
48 aaacatttta ctattacccc ctctggcaaa acttcttttg caaaagcctc tcgctatttt 600
49 ggtttttatc gtcgtctggt aaacgagggt tatgatagtg ttgctcttac tatgcctcgt 660
50 aatteetttt ggegttatgt atetgeatta gttgaatgtg gtatteetaa ateteaactg 720
51 atgaatettt etaeetgtaa taatgttgtt eegttagtte gttttattaa egtagatttt 780
52 tetteceaae gteetgaetg gtataatgag eeagttetta aaategeata aggtaattea 840
53 caatgattaa agttgaaatt aaaccatctc aagcccaatt tactactcgt tctggtgttc 900
54 tegteaggge aageettatt eactgaatga geagetttgt taegttgatt tgggtaatga 960
55 atatecogett etteteaaga ttaetettea teaageteag ceagectate egeetegtet 1020
56 gtacaccgtt catctgteet ettteaaagt tggteagtte ggtteeetta tgattgaeeg 1080
```

RAW SEQUENCE LISTING DATE: 02/16/2005
PATENT APPLICATION: US/10/718,391 TIME: 16:21:30

Input Set : A:\Enz52c2.app

Output Set: N:\CRF4\02162005\J718391.raw

57 tetgegeete gtteeggeta agtaacatgg ageaggtege ggatttegae acaatttate 1140 58 aggegatgat acaaatetee gttgtaettt gtttegeget tggtataate getgggggte 1200 59 aaaqatqaqt qttttaqtqt attctttcqc ctctttcqtt ttaqqttqqt qccttcqtag 1260 60 tggcattacg tattttaccc gtttaatgga aacttcctca tgaaaaagtc tttagtcctc 1320 61 aaagcetetg tageegttge taccetegtt cegatgetgt etttegetge tgagggtgae 1380 62 gatecegeaa aageggeett taacteeetg caageeteag egacegaata tateggttat 1440 63 qcqtqqqcqa tqqttqttqt cattqtcqqc qcaactatcq gtatcaagct gtttaagaaa 1500 64 ttcacctcga aagcaagctg ataaaccgat acaattaaag gctccttttg gagccttttt 1560 65 ttttggagat tttcaacgtg aaaaaattat tattcgcaat tcctttagtt gttcctttct 1620 66 atteteacte egetgaaact gttgaaagtt gtttagcaaa accecataca gaaaatteat 1680 67 ttactaacgt ctggaaagac gacaaaactt tagatcgtta cgctaactat gagggttgtc 1740 68 tgtggaatgc tacaggcgtt gtagtttgta ctggtgacga aactcagtgt tacggtacat 1800 69 gggttcctat tgggcttgct atccctgaaa atgagggtgg tggctctgag ggtggcggtt 1860 70 ctgagggtgg cggttctgag ggtggcggta ctaaacctcc tgagtacggt gatacaccta 1920 71 ttccgggcta tacttatatc aacceteteg acggcactta tccgcctggt actgagcaaa 1980 72 accccgctaa tcctaatcct tctcttgagg agtctcagcc tcttaatact ttcatgtttc 2040 73 agaataatag qttccgaaat aggcagggg cattaactgt ttatacgggc actgttactc 2100 74 aaggcactga ccccgttaaa acttattacc agtacactcc tgtatcatca aaagccatgt 2160 75 atgacgetta etggaacggt aaatteagag aetgegettt eeattetgge tttaatgaag 2220 76 atccattcqt ttqtqaatat caaqqccaat cqtctqacct qcctcaacct cctqtcaatg 2280 77 ctqqcqqcqq ctctqqtqt qqttctqqtq qcqqctctqa qqqtqgtqgc tctqagggtg 2340 78 gcggttctga gggtggcgc tctgagggag gcggttccgg tggtggctct ggttccggtg 2400 79 attttgatta tgaaaagatg gcaaacgcta ataagggggc tatgaccgaa aatgccgatg 2460 80 aaaacqcqct acaqtctqac qctaaaqqca aacttqattc tqtcqctact gattacggtg 2520 81 ctgctatcga tggtttcatt ggtgacgttt ccggccttgc taatggtaat ggtgctactg 2580 82 qtqattttqc tqqctctaat tcccaaatqq ctcaaqtcqq tqacqqtqat aattcacctt 2640 83 taatqaataa tttccqtcaa tatttacctt ccctccctca atcgqttgaa tgtcqccctt 2700 84 ttgtctttag cgctggtaaa ccatatgaat tttctattga ttgtgacaaa ataaacttat 2760 85 teegtggtgt etttgegttt ettttatatg ttgecaeett tatgtatgta ttttetaegt 2820 86 ttgctaacat actgcgtaat aaggagtctt aatcatgcca gttcttttgg gtattccgtt 2880 87 attattgcgt ttcctcggtt tccttctggt aactttgttc ggctatctgc ttacttttct 2940 88 taaaaagggc ttcggtaaga tagctattgc tatttcattg tttcttgctc ttattattgg 3000 89 gettaactea attettgtgg gttatetete tgatattage geteaattae eetetgaett 3060 90 tgttcagggt gttcagttaa ttctcccgtc taatgcgctt ccctgttttt atgttattct 3120 91 ctctgtaaag gctgctattt tcatttttga cgttaaacaa aaaatcgttt cttatttgga 3180 92 ttgggataaa taatatggct gtttattttg taactggcaa attaggctct ggaaagacgc 3240 93 tcgttagcgt tggtaagatt caggataaaa ttgtagctgg gtgcaaaata gcaactaatc 3300 94 ttgatttaag gcttcaaaac ctcccgcaag tcgggaggtt cgctaaaacg cctcgcgttc 3360 95 ttagaatacc ggataagcct tctatatctg atttgcttgc tattgggcgc ggtaatgatt 3420 96 cctacgatga aaataaaaac ggcttgcttg ttctcgatga gtgcggtact tggtttaata 3480 97 cccqttcttq qaatqataaq qaaaqacagc cqattattqa ttqqtttcta catqctcqta 3540 98 aattaggatg ggatattatt tttcttgttc aggacttatc tattgttgat aaacaggcgc 3600 99 gttctgcatt agctgaacat gttgtttatt gtcgtcgtct ggacagaatt actttacctt 3660 100 ttgtcggtac tttatattct cttattactg gctcgaaaat gcctctgcct aaattacatg 3720 101 ttggcgttgt taaatatggc gattctcaat taagccctac tgttgagcgt tggctttata 3780 102 ctggtaagaa tttgtataac gcatatgata ctaaacaggc tttttctagt aattatgatt 3840 103 ccgqtqttta ttcttattta acqccttatt tatcacacgg tcggtatttc aaaccattaa 3900 104 atttaggtca gaagatgaaa ttaactaaaa tatatttgaa aaagttttct cgcgttcttt 3960 105 gtcttgcgat tggatttgca tcagcattta catatagtta tataacccaa cctaagccgg 4020

RAW SEQUENCE LISTING DATE: 02/16/2005 PATENT APPLICATION: US/10/718,391 TIME: 16:21:30

Input Set : A:\Enz52c2.app

```
106 aggttaaaaa ggtagtctct cagacctatg attttgataa attcactatt gactcttctc 4080
107 agcgtcttaa tctaagctat cgctatgttt tcaaggattc taagggaaaa ttaattaata 4140
108 gcgacgattt acagaagcaa ggttattcac tcacatatat tgatttatgt actgtttcca 4200
109 ttaaaaaagg taattcaaat gaaattgtta aatgtaatta attttgtttt cttgatgttt 4260
110 gtttcatcat cttcttttgc tcaggtaatt gaaatgaata attcgcctct gcgcgatttt 4320
111 gtaacttggt attcaaagca atcaggcgaa tccgttattg tttctcccga tgtaaaaggt 4380
112 actqttactq tatattcatc tgacqttaaa cctgaaaatc tacqcaattt ctttatttct 4440
113 gttttacgtg ctaataattt tgatatggtt ggttcaattc cttccataat tcagaagtat 4500
114 aatccaaaca atcaggatta tattgatgaa ttgccatcat ctgataatca ggaatatgat 4560
115 gataattccq ctccttctqq tqqtttcttt qttccqcaaa atqataatqt tactcaaact 4620
116 tttaaaatta ataacgttcg ggcaaaggat ttaatacgag ttgtcgaatt gtttgtaaag 4680
117 totaatactt ctaaatcctc aaatgtatta totattgacg gototaatct attagttgtt 4740
118 agtgcaccta aagatatttt agataacctt cctcaattcc tttctactgt tgatttgcca 4800
119 actgaccaga tattgattga gggtttgata tttgaggttc agcaaggtga tgctttagat 4860
120 ttttcatttg ctgctggctc tcagcgtggc actgttgcag gcggtgttaa tactgaccgc 4920
121 ctcacctctg ttttatcttc tgctggtggt tcgttcggta tttttaatgg cgatgttta 4980
122 qqqctatcaq ttcqcqcatt aaaqactaat aqccattcaa aaatattqtc tqtqccacqt 5040
123 attettacge tttcaggtca gaagggttct atetetgttg gecagaatgt ceettttatt 5100
124 actqqtcqtq tqactqqtqa atctqccaat qtaaataatc catttcagac qattgagcqt 5160
125 caaaatgtag gtatttccat gagcgttttt cctgttgcaa tggctggcgg taatattgtt 5220
126 ctggatatta ccagcaaggc cgatagtttg agttcttcta ctcaggcaag tgatgttatt 5280
127 actaatcaaa gaagtattgc tacaacggtt aatttgcgtg atggacagac tcttttactc 5340
128 ggtggcctca ctgattataa aaacacttct caagattctg gcgtaccgtt cctgtctaaa 5400
129 atccctttaa teggeeteet gtttagetee egetetgatt eeaacgagga aagcaegtta 5460
130 tacqtqctcq tcaaaqcaac cataqtacqc qccctqtaqc qgcqcattaa qcgcgqcggg 5520
131 tgtggtggtt acgcgcagcg tgaccgctac acttgccagc gccctagcgc ccgctccttt 5580
132 cqctttcttc ccttcctttc tcqccacqtt cqccqqcttt ccccqtcaaq ctctaaatcg 5640
133 ggggctccct ttagggttcc gatttagtgc tttacggcac ctcgacccca aaaaacttga 5700
134 tttgggtgat ggttcacgta gtgggccatc gccctgatag acggtttttc gccctttgac 5760
135 gttggagtcc acgttcttta atagtggact cttgttccaa actggaacaa cactcaaccc 5820
136 tateteggge tattettttg atttataagg gattttgeeg attteggaac caccateaaa 5880
137 caggattttc gcctgctggg gcaaaccagc gtggaccgct tgctgcaact ctctcagggc 5940
138 caggcggtga agggcaatca gctgttgccc gtctcgctgg tgaaaagaaa aaccaccctg 6000
139 gegeccaata egeaaacege eteteeeege gegttggeeg atteattaat geagetggea 6060
140 cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaatg tgagttagct 6120
141 cactcattag gcaccccagg ctttacactt tatgcttccg gctcgtatgt tgtgtggaat 6180
142 tgtgagcgga taacaatttc acacaggaaa cagctatgac catgattacg aattcgagct 6240
143 cggtacccgg ggatcctcta gagtcgacct gcaggcatgc aagcttggca ctggccgtcg 6300
144 ttttacaacg tcgtgactgg gaaaaccctg gcgttaccca acttaatcgc cttgcagcac 6360
145 atcccccttt cgccagctgg cgtaatagcg aagaggcccg caccgatcgc ccttcccaac 6420
146 agttgcgcag cctgaatggc gaatggcgct ttgcctggtt tccggcacca gaagcggtgc 6480
147 cggaaagctg gctggagtgc gatcttcctg aggccgatac ggtcgtcgtc ccctcaaact 6540
148 ggcagatgca cggttacgat gcgcccatct acaccaacgt aacctatccc attacggtca 6600
149 atccgccgtt tgttcccacg gagaatccga cgggttgtta ctcgctcaca tttaatgttg 6660
150 atgaaagctg gctacaggaa ggccagacgc gaattatttt tgatggcgtt cctattggtt 6720
151 aaaaaatgag ctgatttaac aaaaatttaa cgcgaatttt aacaaaatat taacgtttac 6780
152 aatttaaata tttqcttata caatcttcct qtttttgggg cttttctgat tatcaaccgg 6840
153 ggtacatatg attgacatgc tagttttacg attaccgttc atcgattctc ttgtttgctc 6900
154 cagactetea ggeaatgace tgatageett tgtagatete teaaaaatag etaceetete 6960
```

RAW SEQUENCE LISTING DATE: 02/16/2005
PATENT APPLICATION: US/10/718,391 TIME: 16:21:30

Input Set : A:\Enz52c2.app

Output Set: N:\CRF4\02162005\J718391.raw

155 cggcattaat ttatcagcta gaacggttga atatcatatt gatggtgatt tgactgtctc 7020 156 cggcctttct cacccttttg aatctttacc tacacattac tcaggcattg catttaaaat 7080 157 atatgagggt totaaaaatt tttatcottg cgttgaaata aaggcttoto ccgcaaaagt 7140 158 attacagggt cataatgttt ttggtacaac cgatttagct ttatgctctg aggctttatt 7200 159 gcttaatttt gctaattctt tgccttgcct gtatgattta ttggatgtt 162 <210> SEQ ID NO: 2 163 <211> LENGTH: 15 164 <212> TYPE: DNA 165 <213> ORGANISM: Artificial Sequence 167 <220> FEATURE: 168 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic primer for nucleic acid production derived from 169 170 M13mp18 sequence 172 <400> SEQUENCE: 2 173 agcaacacta tcata 15 176 <210> SEQ ID NO: 3 177 <211> LENGTH: 15 178 <212> TYPE: DNA 179 <213> ORGANISM: Artificial Sequence 181 <220> FEATURE: 182 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic primer for nucleic acid production derived from M13mp18 sequence 184 186 <400> SEOUENCE: 3 187 acgacgataa aaacc 15 190 <210> SEQ ID NO: 4 191 <211> LENGTH: 15 192 <212> TYPE: DNA 193 <213> ORGANISM: Artificial Sequence 195 <220> FEATURE: 196 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic 197 primer for nucleic acid production derived from 198 M13mp18 sequence 200 <400> SEQUENCE: 4 201 ttttgcaaaa gaagt 15 204 <210> SEQ ID NO: 5 205 <211> LENGTH: 15 206 <212> TYPE: DNA 207 <213> ORGANISM: Artificial Sequence 209 <220> FEATURE: 210 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic primer for nucleic acid production derived from 211 M13mp18 sequence 212 214 <400> SEQUENCE: 5 215 aatagtaaaa tgttt 15 218 <210> SEO ID NO: 6 219 <211> LENGTH: 15 220 <212> TYPE: DNA

221 <213> ORGANISM: Artificial Sequence

RAW SEQUENCE LISTING DATE: 02/16/2005
PATENT APPLICATION: US/10/718,391 TIME: 16:21:30

Input Set : A:\Enz52c2.app

```
223 <220> FEATURE:
224 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
          primer for nucleic acid production derived from
          M13mp18 sequence
228 <400> SEQUENCE: 6
                                                                       15
229 caatactgcg gaatg
232 <210> SEQ ID NO: 7
233 <211> LENGTH: 15
234 <212> TYPE: DNA
235 <213> ORGANISM: Artificial Sequence
237 <220> FEATURE:
238 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
          primer for nucleic acid production derived from
239
240
          M13mp18 sequence
242 <400> SEQUENCE: 7
                                                                        15
243 tgaatccccc tcaaa
246 <210> SEQ ID NO: 8
247 <211> LENGTH: 15
248 <212> TYPE: DNA
249 <213> ORGANISM: Artificial Sequence
251 <220> FEATURE:
252 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
          primer for nucleic acid production derived from
253
          M13mp18 sequence
256 <400> SEQUENCE: 8
                                                                        15
257 agaaaacgag aatga
260 <210> SEQ ID NO: 9
261 <211> LENGTH: 15
262 <212> TYPE: DNA
263 <213> ORGANISM: Artificial Sequence
265 <220> FEATURE:
266 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
          primer for nucleic acid production derived from
          M13mp18 sequence
268
270 <400> SEQUENCE: 9
                                                                        15
271 caggtcttta ccctg
274 <210> SEQ ID NO: 10
275 <211> LENGTH: 15
276 <212> TYPE: DNA
277 <213> ORGANISM: Artificial Sequence
279 <220> FEATURE:
280 <223> OTHER INFORMATION: Description of Artificial Sequence: Synthetic
          primer for nucleic acid production derived from
281
282
          M13mp18 sequence
284 <400> SEQUENCE: 10
285 aggaaagcgg attgc
                                                                        15
288 <210> SEQ ID NO: 11
289 <211> LENGTH: 15
290 <212> TYPE: DNA
```

VERIFICATION SUMMARY

DATE: 02/16/2005

PATENT APPLICATION: US/10/718,391 TIME: 16:21:31

Input Set : A:\Enz52c2.app